

### **REMARKS**

Claims 1-18 are presently pending in the application.

Claim 8 is amended to correct a typographical error. New claims 10-16 have been added to more specifically specify the composition of the getter material. New claims 17 and 18 have been added to recite that the metallic bearing part has a shape of a hollow cylinder with a closed end and includes a molybdenum wire fastened to the closed end. Also, claim 18 recites that the metallic bearing part comprises nickel. Support for new claims 10-18 is found, for example, in the claims as filed and at paragraphs [0015], [0023], and [0026] of the Substitute Specification.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as obvious over U.S. Patent Application Publication No. 2003/0090202 ("Gallitognotta") in view of U.S. Patent Application Publication No. 2003/0230793 ("Amiotti"). Regarding claim 1, the Examiner alleges that Gallitognotta discloses a cathode (11) comprising a metallic bearing part (12) at least partially coated with a layer of getter material (21), wherein the getter material is made of zirconium, vanadium, yttrium, and so on (paragraph 16). The Examiner acknowledges that Gallitognotta does not specifically disclose the getter material being selected from: alloys comprising zirconium, cobalt and at least one component selected from yttrium, lanthanum and rare earths such that, in a ternary diagram of weight % compositions, the alloys are enclosed in a polygon defined by the following points: a) Zr 81%-Co 9%-A 10% b) Zr 68%-Co 22%-A 10% c) Zr 74%-Co 24%-A 2% d) Zr 88%-Co 10%-A 2% wherein A is an element selected from yttrium, lanthanum, rare earths, and mixtures thereof; alloys consisting of yttrium and aluminum containing at least 70% by weight yttrium; and alloys consisting of yttrium and vanadium containing at least 70% by weight yttrium.

The Examiner alleges that Amiotti discloses a getter material having Zr 80.8%, Co 14.2%, and yttrium 5% (paragraph 26), which is used for the purpose of removing contaminant material effectively. The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a getter material having Zr 80.8%, Co 14.2%, and yttrium 5% in the cathode disclosed by Gallitognotta, for the purpose of

removing contaminant material effectively. Applicants respectfully but strenuously traverse the rejection of claims 1-9, as explained below.

Claim 1 recites a cathode for cold cathode lamps, which comprises a metallic bearing part with a layer of a getter material. As stated above, the Examiner acknowledges that Gallitognotta fails to disclose the composition recited in claim 1 for the getter material but concludes that it would have been obvious to use the getter material disclosed in Amiotii in the cold cathode lamp of Gallitognotta for the purpose of removing contaminant material effectively. However, there is a very large number of potential compounds or mixtures that are considered a “getter” material and, thus, that can be used to remove contaminants. No reason has been provided for one of ordinary skill in the art to specifically choose a getter material having, for example, Zr 80.8%, Co 14.2%, and yttrium 5%, among all the many possibilities of getter materials. The Examiner has not provided any reasoning for one of ordinary skill in the art to choose a getter material that contains Zr, Co, and yttrium, specifically, and that the component amounts are 80.8%, 14.2%, and 5%, respectively.

The mere fact that a getter material is listed as being used to remove impurities (which is what getter materials do) is insufficient reason to select one particular getter material to utilize in the invention of Gallitognotta. The disclosure of Gallitognotta already identifies getter materials which are utilized and no reason has been provided to replace those getter materials with other getter materials. Moreover, the Examiner has not identified any advantages of the getter material disclosed in Amiotti with respect to the getter materials disclosed in Gallitognotta, such that one of ordinary skill in the art would be led to replace the getter materials of Gallitognotta with the getter material of Amiotti. Accordingly, *prima facie* obviousness is absent and claim 1 is patentable over Gallitognotta in view of Amiotti.

Additionally, the Substitute Specification explains in paragraph [0013] that in the prior art, in order to decrease the work function of a cathode as well as remove impurities, two different materials were utilized, one to lower the work function and the other to function as a

getter to remove impurities. Thus, it is clear from paragraph [0013] of the specification that one of ordinary skill in the art would find it to be unexpected to utilize a compound or alloy that can simultaneously effectively reduce the work function in a cathode and act as a getter material to remove impurities. Otherwise, there would be a need to coat two different powders onto a cathode to achieve the two different results, as is done in the prior art. Thus, the present invention provides unexpected results, and the Federal Circuit has made clear that unexpected results can rebut *prima facie* obviousness. See *In re Chupp*, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987). Thus, claim 1 is patentable for this reason as well.

Furthermore, the Substitute Specification discloses in paragraph [0041] that the alloys of the present invention provide a notable decrease of the work function value of the cathodes in addition to also functioning as getter materials. For instance, the use of a getter material in Example 3 of the substitute specification (Zr 80%-Co 15%-MM 5%) provides a decrease in work function from about 4.9 eV for uncoated nickel wire to about 3.1 eV for the coated wire with the alloy, which is a reduction of about 37%. This further demonstrates the unexpected results of the present invention, since the improvements in the work function value are significant.

Also, as is clear from the present invention, the objective is to provide a cold cathode lamp that has an integrated getter with the function of removing gaseous contaminants and also primarily to reduce the value of the work function, which reduces the amount of power consumption of lamps. This is explained at paragraphs [0003] and [0007]-[0010] of the Substitute Specification. Importantly, getter materials are not intrinsically capable of lowering the work function. For example, titanium, which is one of the most used getter materials, has a work function of 4.55 eV, which is very close to that of a tungsten cathode. The use of a getter material such as titanium to lower the work function of a cathode lamp with a tungsten cathode would be useless. The same can be said about nickel, which has a work function of about 5 eV.

One of ordinary skill in the art who desires to lower the work function of a cathode lamp would not have thought that getter materials can effect such lowering of the work function. Thus, the use of getter materials to lower the work function in a cathode lamp is unexpected.

Accordingly, starting from the invention of Gallitognotta, it would not have not been obvious for one of skill in the art to predict that the same material could be utilized to carry out both the getter function and the reduction of the work function of a lamp.

Thus, in view of the above, claim 1 is patentable over Gallitognotta in view of Amiotti. Claims 2-9 depend (directly or indirectly) from claim 1 and are patentable at least for the reason that they depend from a patentable base claim. Thus, reconsideration and withdrawal of the rejection of claims 1-9 as obvious over Gallitognotta in view of Amiotti are respectfully requested.

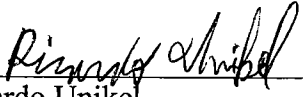
New claims 10-18 depend from claim 1 and are patentable at least for the reason that they depend from a patentable base claim. Additionally, claims 10-16 more specifically recite the compositions of the getter material. These compositions are different from the compositions recited at paragraph [0026] of Amiotti and, therefore, distinguish over Gallitognotta in view of Amiotti. Claim 17 is also patentable at least for the reason that Gallitognotta in view of Amiotti does not disclose or suggest a metallic bearing part having a shape of a cylinder with a closed end and comprising a molybdenum wire fastened to the closed end. Claim 18 is also patentable at least for the reason that Gallitognotta in view of Amiotti does not disclose or suggest a metallic bearing part comprising nickel, having the shape of a hollow cylinder with a closed end, and including a molybdenum wire fastened to the closed end.

**CONCLUSION**

In view of the foregoing Remarks, Applicants respectfully submit that the claims distinguish over the cited art. Therefore, the present application is in condition for allowance. Reconsideration and an early Notice of Allowance are respectfully requested.

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